high water

a floodplain management newsletter

Volume 30

December 1987

Keystone case is good news for land use regulations

With the negative articles in the press lately about court cases on land use regulation, some good news would be welcome. Keystone Coal Association v. DeBendictis (Keystone) is one of several Supreme Court cases on land use decided this term. Unfortunately, the Keystone case has generally been ignored by the press.

The Keystone Coal case centered around legislation adopted by Pennsylvania in 1966. The law prohibited coal mining if it caused subsidence of residences, public buildings, or cemeteries. This regulation was to protect the health, safety, and general welfare of the public. Several coal companies sued the state of Pennsylvania. They claimed the law and regulations were an illegal "taking" of their property right to mine coal without receiving just compensation from the state. The U.S. Supreme Court ruled that the value of the coal companies' property was not so substantially reduced as to become an unconstitutional taking of property. This ruling came despite the fact the regulation prevented the removal of some 27 million tons of coal, in some circumstances constituting 50% of the available coal. The Court cited a long list of Supreme Court decisions over the last 70 years upholding highly restrictive regulations where issues of public health, safety, or prevention of nuisances were involved.

The Keystone case upheld state regulations almost identical to those previously overturned by the Court in a 1922 decision. The 1922 decision, Pennsylvania Coal v. Mahon, until now had been viewed as one of the classic textbook statements defining the outer limits of government's power to regulate land. In the Keystone case the Court emphasized the fact that the regulations were similar to those in the Pennsylvania Coal case. The difference was that the regulations in the Keystone case were adopted to serve a community-wide need and the Pennsylvania Coal case regulations were designed to benefit individuals.

Photo credit: Phillips County News

A peaceful canoe trip? No, these are flood victims paddling down a street in Malta during the 1986 flood.

The ruling in Keystone strongly endorses regulations which substantially reduce a landowner's property values when the regulations serve the important goals of protecting health and safety and preventing nuisances. Although the case dealt with regulations addressing a relatively uncommon hazard like subsidence, the court's rationale applies equally to flood, mudslide, landslide, earthquake, and other types of hazard-reduction regulations.

Montana Department of Natural Resources and Conservation

Floodproofing: What is it?

Floodplain regulations call for floodproofing new commercial and industrial buildings in the 100-year floodplain. The regulations don't fully describe floodproofing so we get questions about floodproofing and how it works. Floodproofing includes any adjustments to structures or contents designed to reduce flood damages. Floodproofing a structure is accomplished by using impermeable membranes or materials for floors and walls. Water-tight enclosures must be used for all windows, doors, and other openings located below flood levels.

Floodproofing requires that walls and floors are impermeable and strong enough to withstand the hydrostatic and uplift pressures of floodwaters. Three types of wall can be considered strong enough for watertight construction: brick veneer, unreinforced masonry and concrete, and reinforced masonry and concrete. For floors, cast-in-place concrete is the only construction material that has the design capability to resist hydrostatic uplift pressures. Unreinforced slab floors are satisfactory if they are thick enough to resist buckling and uplift pressure. The preferred construction uses a reinforced concrete slab that is tied into the structural walls, columns, and footings. The total weight of the structure counteracts uplift pressures. The slab and foundation walls should be designed by a professional engineer.

Floodproofing measures are broken down into two types, permanent and contingent. Permanent floodproofing measures, once installed, require no further action when flooding occurs. Contingent floodproofing measures require installation or other preparation immediately prior to flooding.

In general, permanent floodproofing is most effective in areas that are subject to frequent flooding, relatively high flood depths, or where flood warning time is not sufficient to use contingent floodproofing. There are several advantages to permanent floodproofing. It reduces reliance on sophisticated flood warning and preparedness systems. Usually evacuation of the occupants is the only pre-flood activity necessary. Also, the effectiveness of the floodproofing cannot be jeopardized by human error from installing the system under possibly adverse conditions immediately preceding a flood. Permanent floodproofing requires little or no operation and maintenance costs, and no equipment storage or training for installation of contingent methods is needed.

The principal disadvantage of permanent floodproofing is higher initial construction cost. Also, adjustments made to prevent water from entering the building may restrict access and use of certain areas of the building. Types of permanent floodproofing include permanent closures, sealants, waterproof membranes, water-tight cores, floodwalls, or levees.

Sealant for floodproofing walls is a waterproof coating that can be applied to the outside of an existing wall or beneath the veneer of a new wall to reduce the wall's permeability. The coating is generally an asphalt-based or polymeric compound that can be sprayed or painted onto the wall. Polyethylene plastic sheets can be applied in conjunction with these coatings.

Water-tight cores are useful when an entire building cannot be completely floodproofed by other methods. This type of water-tight enclosure or core is usually constructed of cast-in-place concrete. The water-tight wall or core is installed around items in the building that are particularly susceptible to flood damage.

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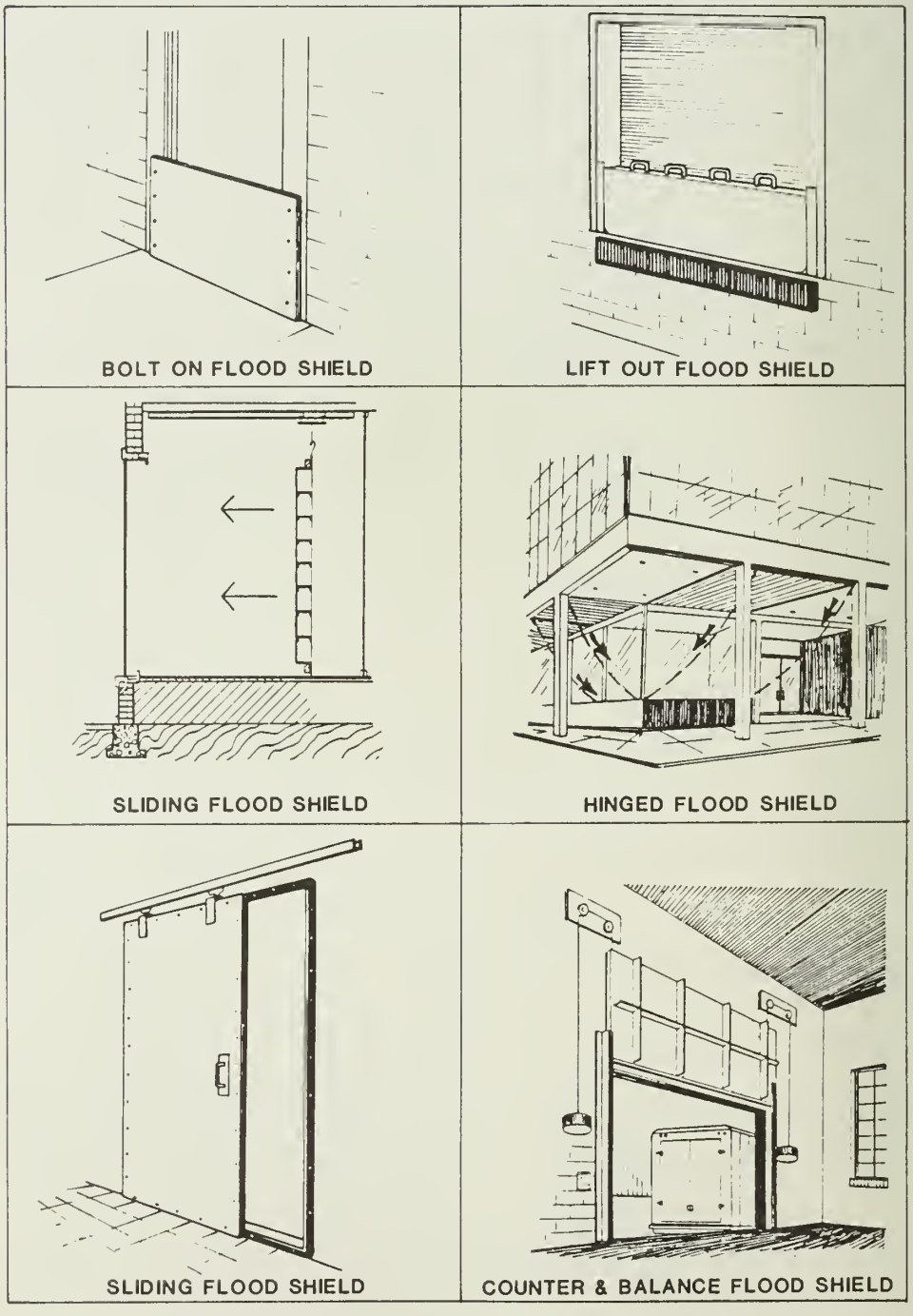

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Floodplain Management Workshop Questionnaire

We are planning workshops for the coming year and we would like your help. First of all we would like to know if you are interested in attending a workshop on floodplain management. We want to know what type of information you would like to obtain from the workshop. Please take a few minutes to fill out the following questionnaire. Return it to Deeda Richard, DNRC, 1520 East Sixth Avenue, Helena, Montana 59620-2301.

Are you interested in attending a workshop on floodplain management?

Yes____ No____ Comments: _____

_____

_____

Where would you like to have the workshop? *(How about Hawaii?)*

Billings _____ Helena _____

Bozeman _____ Kalispell _____

Glasgow _____ Missoula _____

Great Falls _____ Other _____

Havre _____

What month would be the best for you to attend a workshop during the coming year?

April _____ July _____

May _____ August _____

June _____ September _____

How long a workshop would you like to attend?

Half-day _____ 1½ days _____

One day _____ Other _____

Continued

What type of information or presentations would you want at the workshop? ***(Check the ones below you would be interested in.)***

Types of assistance and funding available to local governments from the Corps of Engineers, FEMA, and the Soil Conservation Service _____

Floodplain map preparation and interpretation _____

Permitting structures in flood zones without elevations _____

Legal aspects of local floodplain management enforcement _____

Local floodplain administrators' and local governments' liability _____

Floodplain management ordinance updates and revisions _____

Field trips to a local floodplain management or flood control project _____

Federal programs for updating, revising, or developing floodplain maps _____

Information on national flood insurance _____

Please write any suggestions you have for workshop presentations: _____

_____

_____

_____

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_____

Waterproof membranes consist of PVC sheets or coatings of felt, canvas, or similar material set in layers of hot bituminous coatings (coal tar, pitch, or asphalt). This method is applicable to all types of masonry and concrete construction. To be effective the membrane must be continuous and protected by a layer of brick, concrete, or sand.

Small floodwalls and levees can be used to protect a building from flooding. Floodwalls are generally made of masonry or concrete. Levees are earth embankments with low, sloped sides, a wide crest, and a cut-off trench. Floodwalls and levees can be used in areas with relatively high flood depths, but require a lot of space. A levee with 3:1 side slopes, eight to ten feet high, on a two-acre site will occupy approximately one-half the area of the site. Levees and floodwalls must be maintained, drainage must be provided, and they must be designed to prevent under-seepage.

Contingent floodproofing measures may be the best option when restricted access is a problem or utilization of space is critical. The main advantage of contingent floodproofing is that shields and closures can be moved aside and stored, allowing full access to doors, windows, or other openings. Contingent floodproofing is most cost-effective for shallow flood depths when a small number of openings are involved. A major disadvantage to a contingent floodproofing system is the potential for human error associated with installing closures during a flood event. Also, equipment storage must be carefully planned and employees must be properly trained on installation of the system.

Flood shields, water-tight doors, and movable floodwalls are all contingent floodproofing methods. Flood shields are the most commonly used contingent floodproofing method. A flood shield is a water-tight barrier that prevents the passage of water through doors, windows, ventilation shafts, or other openings. Flood shields are usually made of steel or aluminum. Normally some type of gasket or seal is required to ensure that the shield is water-tight; bolts should be used to provide proper contact for sealing. Water-tight doors can be closed and sealed by a simple latch mechanism. Levees, floodwalls, and waterproof cores are considered contingent methods when they are installed with access openings that must be sealed with shields or doors during a flood event. Movable floodwalls can be installed when a permanent floodwall or levee will not work. Folding floodwalls are hinged at the bottom so they can be lowered into a horizontal position to form a walk or fit flush with the ground or pavement. There are also floodwalls that slide up and down into a recessed area below grade.

Contingent floodproofing must be used in combination with permanent floodproofing because all walls and floors must be impermeable to water. If you would like to know more about floodproofing we can send a copy of **Floodproofing Non-Residential Structure**s by the Federal Emergency Management Agency. The materials in this article were taken from this publication.

File floodplain studies with clerk and recorder

Section 76-5-202 MCA requires floodplain maps that have been designated by the Board of Natural Resources and Conservation be recorded with the county clerk and recorder. The Board has designated floodplains and/or floodways for the cities, towns and counties listed below. If you are aware that these studies have not been filed with the clerk and recorder of the county where they are located, please write or call the Floodplain Management Section. Studies are underway for streams in Bozeman, Chester, Liberty County, Missoula County, Carbon County, and Yellowstone County.

SCS - Soil Conservation Service
FIS - Flood Insurance Study, Federal Emergency Management Agency
Corps - U.S. Army Corps of Engineers

County	Type of Study
Anaconda-Deer Lodge County	SCS, FIS
Beaverhead County	Corps, FIS
Big Horn County	FIS
Blaine County	FIS
Butte-Silver Bow County	FIS, SCS
Carbon County	FIS
Cascade County	Corps, SCS, FIS
Fallon County	SCS
Fergus County	SCS, FIS
Flathead County	Corps, FIS
Gallatin County	Corps, SCS, FIS
Golden Valley County	FIS
Granite County	FIS
Jefferson County	SCS
Lake County	FIS
Lewis and Clark County	FIS
Lincoln County	FIS
Missoula County	Corps, FIS
Park County	Corps
Phillips County	FIS
Powell County	FIS
Ravalli County	FIS
Richland County	FIS
Sanders County	Corps
Stillwater County	SCS, FIS
Sweet Grass County	FIS
Teton County	FIS
Valley County	SCS
Wheatland County	FIS
Wibaux County	FIS
Yellowstone County	Corps, SCS, FIS

Municipality	Type of Study
Baker	SCS
Billings	Corps, FIS
Bozeman	FIS
Chinook	FIS
Choteau	FIS
Deer Lodge	FIS
Denton	SCS, FIS
Dillon	Corps, FIS
Drummond	FIS
East Helena	FIS
Eureka	FIS
Fromberg	FIS
Glasgow	SCS
Grassrange	FIS
Great Falls	Corps, FIS
Harlem	FIS
Harlowton	FIS
Helena	FIS
Joliet	FIS
Kalispell	FIS
Laurel	FIS
Lavina	FIS
Lewistown	SCS, FIS
Libby	FIS
Lima	FIS
Livingston	Corps
Lodge Grass	FIS
Malta	FIS
Miles City	FIS
Missoula	Corps, FIS
Moore	FIS
Philipsburg	FIS
Plains	Corps
Red Lodge	FIS
Ryegate	FIS
Sidney	FIS
Three Forks	FIS
Troy	FIS
Whitefish	FIS
Whitehall	SCS
Wibaux	FIS

General public to pay for floodplain maps

A small fee is being charged for floodplain maps after October 1, 1987. This is according to a proposal in the March 3rd, 1987 Federal Register. Entities exempt from the fee charges are federal, state, and local governments, lending institutions, insurance agents, insurance brokers, and "Write-Your-Own" flood insurance companies.

Charging for floodplain maps is part of the move by the Federal Emergency Management Agency (FEMA) to make the National Flood Insurance Program self-supporting by 1988. FEMA wants the individual user to bear the cost of obtaining maps. The charge for maps was still undetermined as of press time for our newsletter.

Floodplain Management Section Staff:

John Hamill, Supervisor

Deeda Richard, Floodplain Community Assistance Coordinator and Newsletter Editor

Phone: (406) 444-6646/6654/6655

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Floodplain Management Section
Montana Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

Funding for this newsletter was provided by the Federal Emergency Management Agency. Statements contained in it are the responsibility of the Floodplain Management Section of the Department of Natural Resources and Conservation.